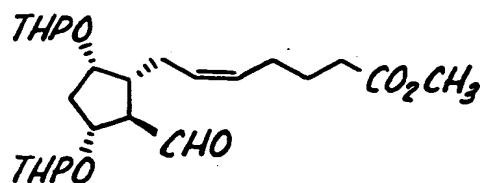
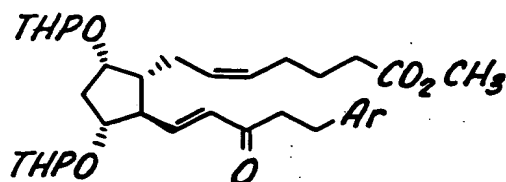
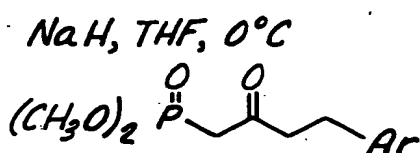


FIG. 1.

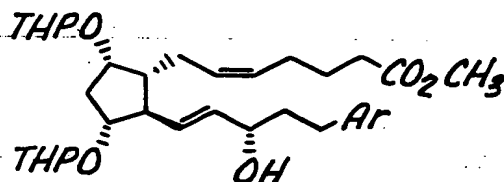
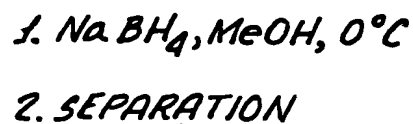
1/5



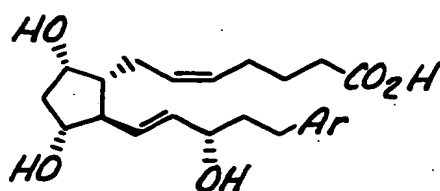
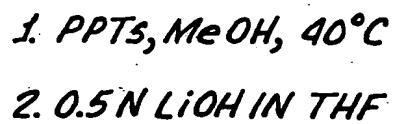
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2



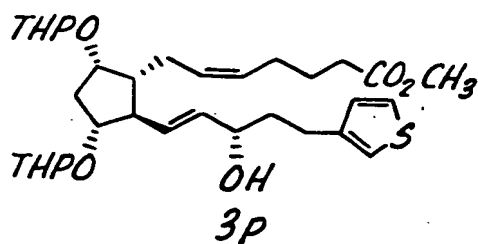
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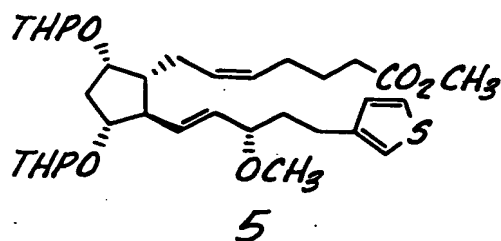
4a-8

2/5

FIG. 2.



AgOTf, MeI, CH₂Cl₂
OR
MeOTf, 2,6-LUTIDINE, CH₂Cl₂



1. PPTs, MeOH, 40°C
2. 0.5N LiOH IN THF

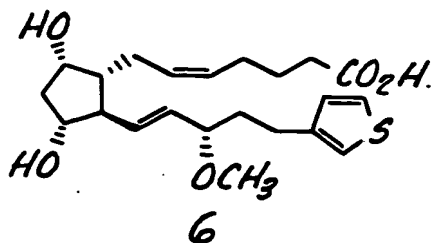
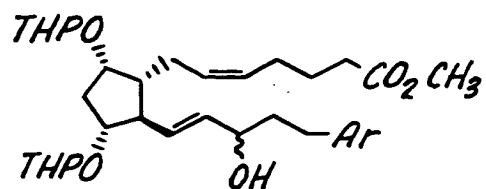


FIG. 3.

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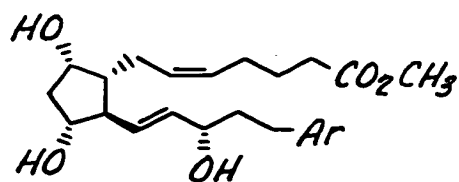


3p $\alpha\text{-OH}$

3q $\beta\text{-OH}$

3r $\alpha\text{-OH}$

$\text{PPTS, MeOH, } 40^\circ\text{C}$

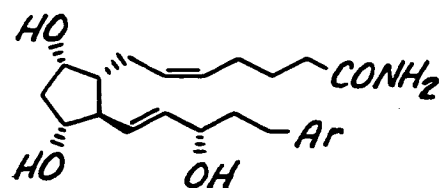


7p $\alpha\text{-OH}$

7q $\beta\text{-OH}$

7r $\alpha\text{-OH}$

NH_4Cl
 NH_3
 $55\text{-}60^\circ\text{C}$

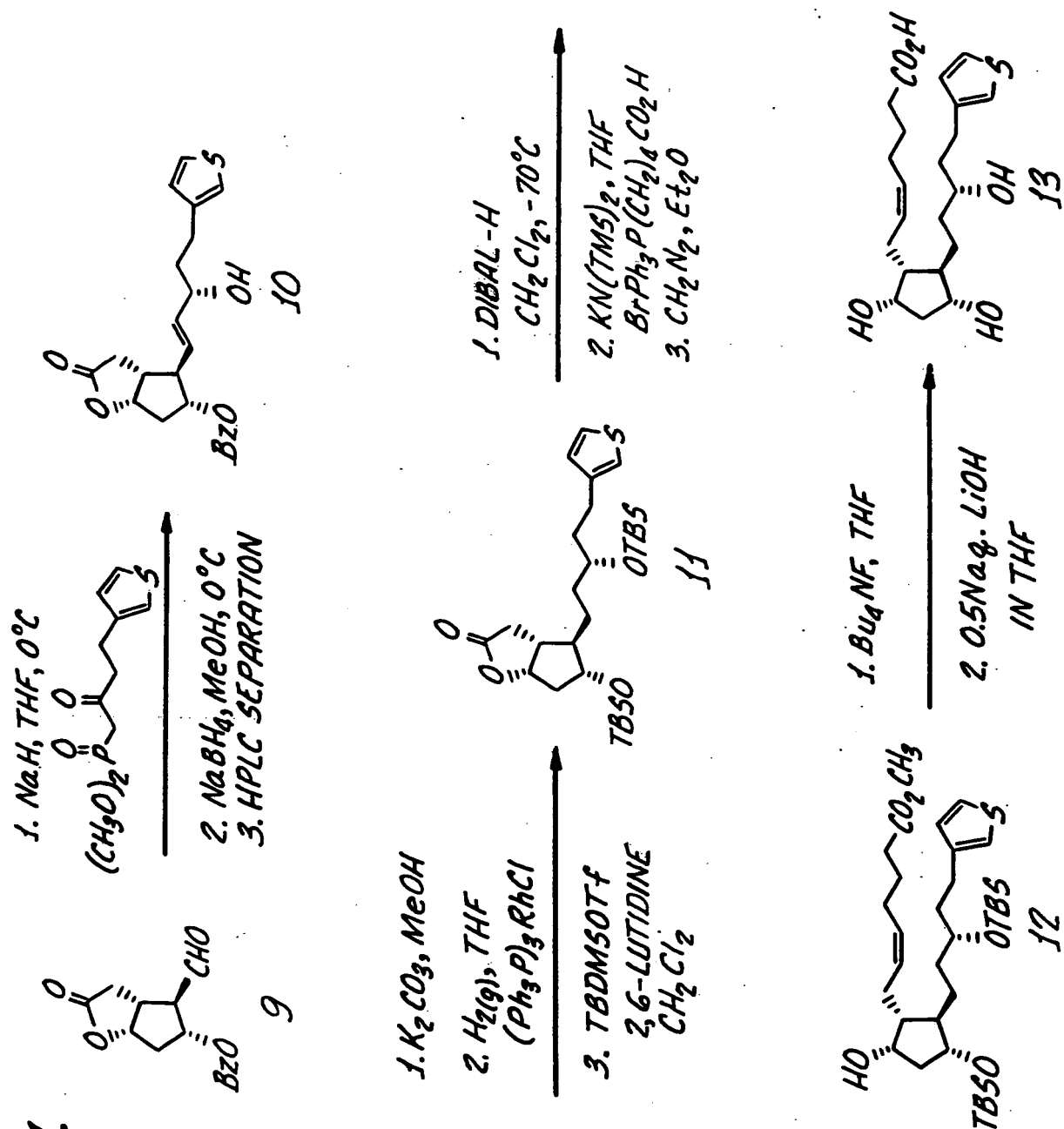


8p $\alpha\text{-OH}$

8q $\beta\text{-OH}$

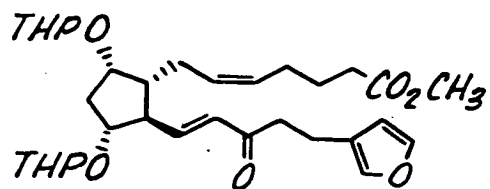
8r $\alpha\text{-OH}$

FIG. 4.



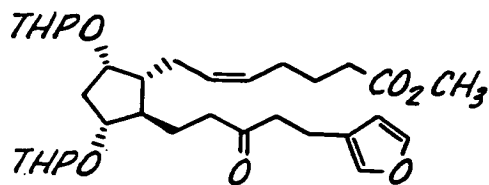
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FIG. 5.



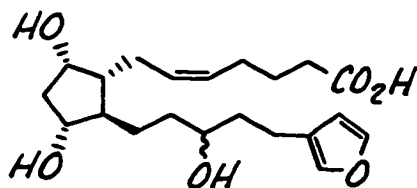
2k

↓
ALIQUAT 336
 $\text{Na}_2\text{S}_2\text{O}_4$
 NaHCO_3
BENZENE: H_2O , 80°C



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↓
1. NaBH_4 , MeOH
2. PPTS, MeOH, 45°C
3. 0.5 N LiOH IN THF



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